FOREST INSECT CONDITIONS ON THE

PAYETTE NATIONAL FOREST

1966

The following report depicts major insect problems encountered on the Payette National Forest during 1966. Information for the report was accumulated during the course of aerial detection flights and on-the-ground biological evaluations. Ground evaluations were materially aided this year by reports from the Payette Staff, submitted on Forest Pest Detection Field Report cards.

Several areas of forest insect activity were located on the forest during the past field season. In many locations Ips beetles, that are usually secondary invaders, made aggressive attacks in ponderosa pine stands. In most cases Ips build ups were associated with logging or thinning operations. Spruce budworm damage to wilderness fir stands decreased in size and intensity. Four new areas of budworm activity were located out of the wilderness. These infestations were characterized by light defoliation and the course they will run is a matter of conjecture at this time. Slight increases were noted in mountain pine beetle activity throughout ponderosa pine stands, but no large scale outbreaks were reported. A more comprehensive discussion of these problems follows:

IPS (Many Species)

The past field season was characterized by protracted periods of high temperatures, low humidity, and below normal amounts of precipitation. Under these conditions, Ips beetles have the ability to build up rapidly and at times become epidemic. During the summer and late fall, increasing numbers of Ips attacked pines were observed. In the Wickiup Creek and Calf Pen Gulch area approximately 2,500 ponderosa pines were attacked and killed this summer. Attacks for the most part were mainly confined to ten inch d.b.h. or less trees that had been left in thinning plots, and trees in a stagnated condition. On the west side of the forest several large groups of Ips killed ponderosa pines were located during the aerial detection surveys. Group sizes run from 20 to over 150 trees with large groups occurring in Coyote Gulch and near Clifton Springs. Infestations on the west side are too numerous to mention in the text of this report. The map accompanying the report shows the location and estimated numbers of trees per area.

Reports of insect activity were received through September and October of this year which was after aerial detection flights had been made on the Payette. Therefore, there is a possibility that your field personnel may know of infestations that are not shown on this year's map.

Ground evaluations were made of as many of the Ips infestation centers as possible this fall. It was found in almost every area where standing trees had been attacked that logging or thinning operations have been conducted during the past two years. Thinning slash and logging debris have provided a suitable host material for the beetles to build up in. This, coupled with almost optimum weather conditions for beetle development provided an explosive situation. In past years these population developments have usually been confined to one or two seasons' activities. If present infestations follow the course of past outbreaks it is possible that the beetles will decline next year. There is no guarantee that this will happen as well as there is no guarantee that the insects will continue their development. If we experience another summer like the one that is just past, it is expected that Ips population will continue to be epidemic in localized areas. Whenever these situations occur the best possibility for control is to get rid of the logging debris and thinning slash on a current year basis.

SPRUCE BUDWORM, Choristoneura fumiferana (Clem.)

For several years populations of the spruce budworm have persisted in wilderness areas of the forest and are contiguous with infestations occurring on the Salmon, Challis, and Boise National Forests. Douglas-fir and true firs suffered light to extremely heavy defoliation along the Middle Fork of the Salmon River with tree mortality beginning to show up in 1965. The mortality occurred in patches in reproduction and pole size timber. No large scale killing has been observed so far.

Aerial observers this year found five new outbreaks of the spruce budworm. Four of these occur outside of the wilderness area, and are located in Split Creek, the Middle Fork of Elk Creek, and in an area running from French Creek to Canada Saddle along the Salmon River breaks. Two new wilderness infestations showed up, one in Five Mile Creek; and the other in Shellrock Creek. Even though new infestation centers were encountered, the overall character of the main infestation dropped off markedly as far as defoliation and number of acres affected were concerned. At present, 83,700 acres have been defoliated, and except for one small area, the defoliation pattern has been classed as light. This is in sharp contrast with the 217,000 acres that were mapped in during the 1965 aerial survey season. Limited ground checks showed that budworm populations had definitely declined during the 1966 field season.

The decided downward trend in budworm activity coincided precisely with conditions observed on the bordering Boise, Challis, and Salmon National Forests where populations also dropped off during the past year. Reductions in budworm activity have pretty well been narrowed to the effect of adverse weather. There are two periods

in this pest's life cycle where the larvae are highly susceptible to cold weather. First, from the time the larvae hatch from the egg and start crawling to their winter hibernaculum sites; second, when the larvae leave the hibernaculae and start searching for new buds which they mine. These two periods occur in the fall and spring, respectively. Coincident with these developmental times in the insects life cycle, periods of hard freezes were experienced in 1965 (fall) and in 1966 (spring). It is felt that these freezes were primarily responsible for current population reductions. Also, there was undoubtedly a supplementary impact on the budworm from native predator-parasite complexes that have been associated with populations for a considerable period of time. Even though the total number of budworm larvae were reduced, surviving residual populations are still present. These individuals are considered a biological reservoir and have the potential to cause reinfestation if biological and climatological factors are suitable for their development in the future.

In summary, budworm populations have slowed down due to a combination of adverse weather conditions at two critical phases of their life cycle; also, native predators and parasites have added impetus to the reduction in the total numbers of the pest. Unfavorable weather conditions are extremely helpful when they occur but cannot be counted on from year to year. With this in mind, it is felt that the fir stands will have at least one year's period of time in which to partially recuperate.

MOUNTAIN PINE BEETLE, Dendroctonus ponderosae (Hopk.)

For the past four years, mountain pine beetle populations have shown a slow but steady increase on the west side of the forest, primarily on the Hornet and Council Ranger Districts. So far the slow build ups have been confined to groups of not more than 20 to 30 trees. During this year's detection flights, observers noted that a few more groups of faders were showing up than were found in 1965. Ground checks in some of these areas showed that the mountain pine beetle is working in association with Ips populations. It is virtually impossible to tell which one of the two insect groups hit the trees first. It is assumed that they are following the usual pattern of the mountain pine beetle making the initial attack with Ips filling in after the primary attacks were made. Due to heavy Ips build ups throughout the west side in ponderosa pine stands this year, their broods are causing considerable competition with mountain pine beetle broods. When a situation like this occurs, mountain pine beetle broods are usually reduced in number. It follows then that there are fewer individuals to make attacks into standing trees the next year. This may or may not be a partial explanation as to why losses from mountain pine beetle activity have not increased significantly during the past two field seasons.

Small, group infestations of mountain pine beetles have been active in the foot hills east of Donnelly for the past five years. Faded pines have been observed from Cold Fork Creek northward to Little Payette Lake. This year detection flights over the area show that groups have dropped off in size, and in total number of groups present. These infestations are classed as static for the present time.

In last year's report, mountain pine beetle activity in lodgepole pine was mentioned southwest of Upper Payette Lake. This particular infestation was checked again this year and showed definite signs of decreasing. Last year we reported fading in approximately 40 mature to over-mature age class trees. This year, only five faders were located and the infestation appears to be dropping off rapidly. Clearing of forested land by private land owners has occurred for the past two years east and slightly north of New Meadows. The individuals who were doing the clearing made no attempt to clean up their slash and debris. As a consequence, relatively large populations of Ips built up in the downed material and attacked pole sized ponderosa pines. Also, mountain pine beetle attacks occurred in this area during the 1965 field season. Ground checks show approximately 100 to 150 trees killed in 1965. This year the situation remains almost identical to last year's observations, with approximately 150 to 175 trees attacked. Broods in the trees are a mixture of mountain pine beetles and Ips.

It is felt that brood densities were not sufficiently high to cause alarm at the present time. The inter-specific competition between these two forms will probably continue and the infestation is not expected to get much larger for at least another year. At the present time the bulk of the infestation occurs on private lands. Some fading was observed on forest land and there is sufficient host material to maintain the beetles if they fly in an easterly direction.

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